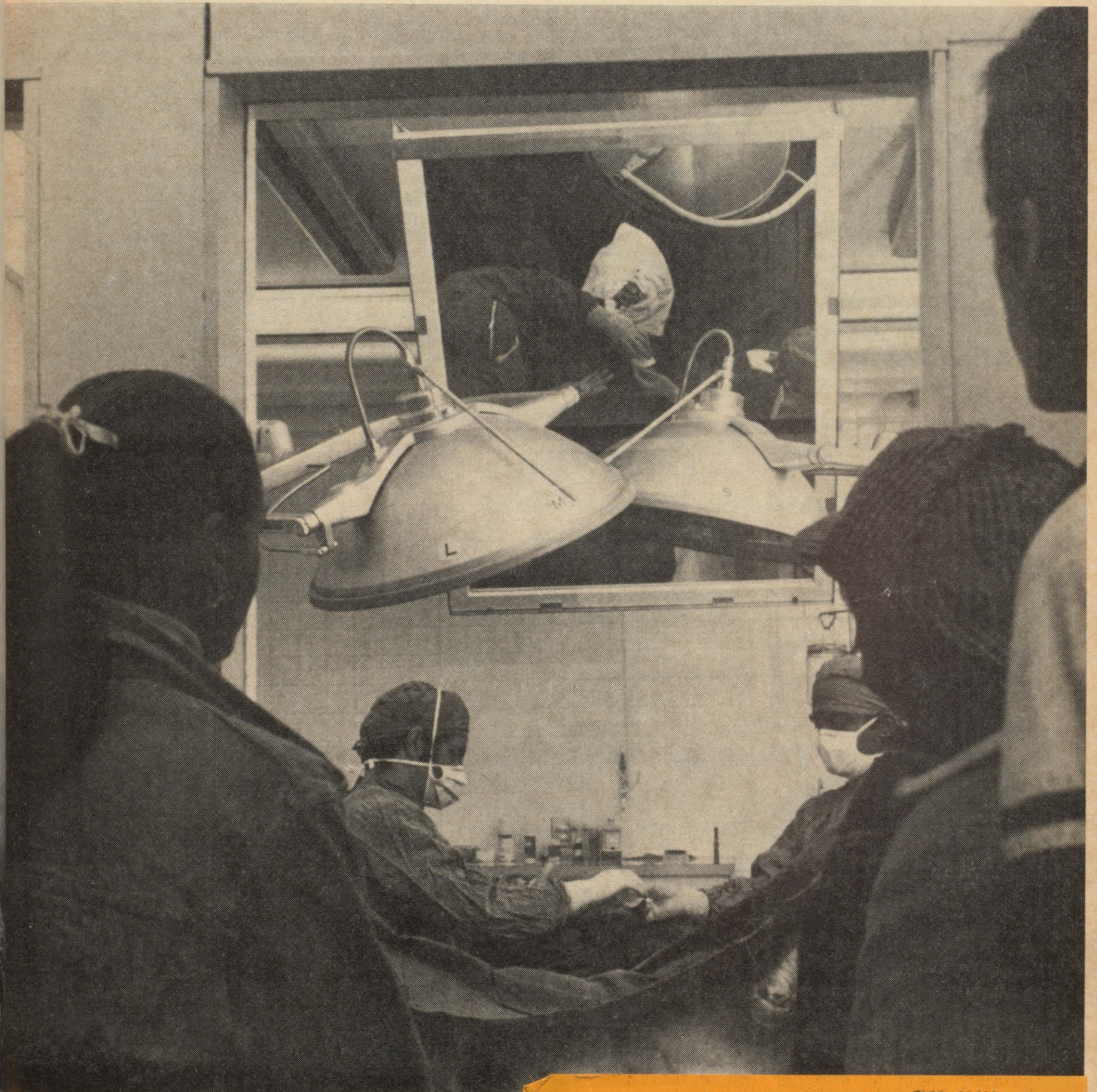


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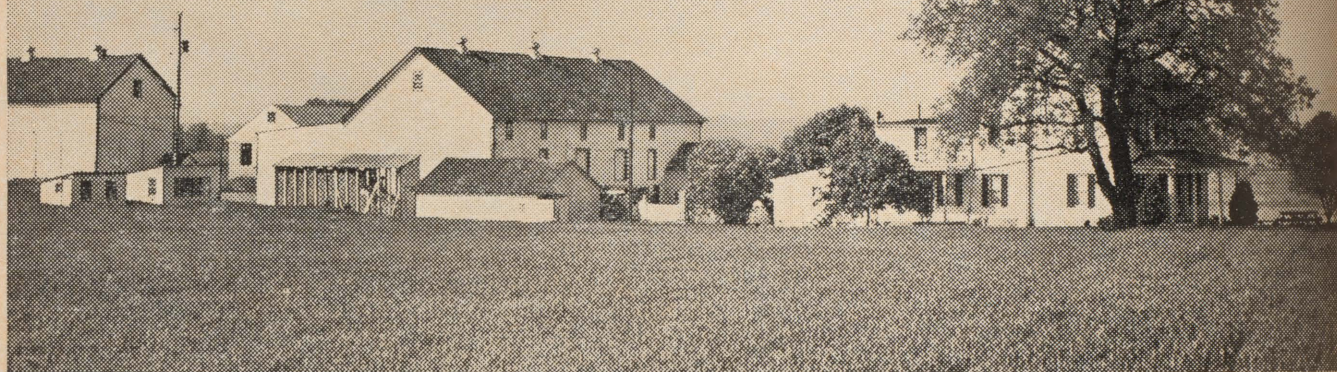
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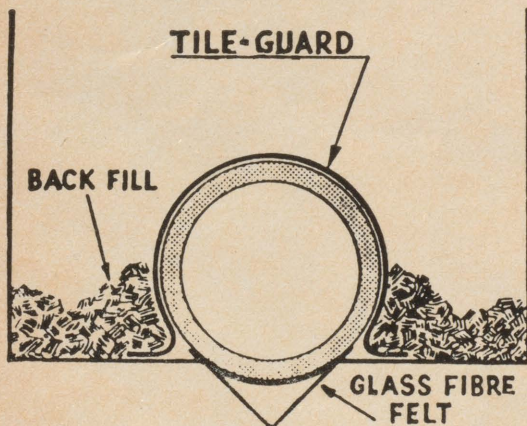
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Cover: Surgery being performed at
the Macdonald Embryo Unit. Visi-
tors are welcome. Windows and
mirrors are provided for viewing
surgery. See article page 2.

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Journal Jottings

A couple of years ago, a group of
visiting farmers, who were being
shown around part of the
College, were taken to one
particular research building where
studies were being conducted in a
non-agricultural area. Although the
results would definitely have
implications affecting farming, one
irate dairy farmer still wasn't
convinced. "Why the devil are you
people wasting time and money on
this kind of thing?" he questioned.
"Why in blazes aren't you trying
to find a way for a cow to have
more than one calf a year — that's
the type of research you fellows
should be doing to help us farmers."

Well, sir, that type of research was
being done here at Macdonald and
elsewhere, and as a result it is now
possible for a cow to "have"
several calves a year thanks to the
embryo transfer technique that has
been perfected. Professor Baker's
article on embryo transfers and the
Macdonald Embryo Unit appears
in this issue. It is an article we
have been waiting impatiently
to publish.

Just as artificial insemination was
a major breakthrough years ago,
so is the embryo transfer today.
The combination of the two now
offers immense possibilities for the
production of genetically superior
cattle.

Hazel M. Clarke.

EMBRYO TRANSFER IN QUEBEC

by Dr. R. D. Baker,
Director,
Macdonald Embryo Unit.

Quebec imports over 70 per cent of its beef and is self-sufficient in dairy production. Assuming the prices of beef, milk, butter, and cheese are not out of reach of the average consumer by 1980, consumption is expected to increase by 30 to 40 per cent above the present level. Can Quebec farmers cope with the increase in demand for beef and dairy products at a price the consumer can afford?

Yes, but they need help. They need to continue to use new technology to increase the efficiency of their livestock programs and to increase the rate of genetic improvement in their herds. Artificial insemination was first used in Quebec over 30 years ago and now 50 per cent of the dairy cows (440,000 head) and 7 per cent of the beef cows (13,500 head) are bred artificially. In addition, 3,000 dairy farmers with over 110,000 cows are using the most advanced computerized recording, milk testing, and data analysis service available in Canada, the Macdonald Dairy Herd Analysis Service, to reduce the cost of milk production and to increase the rate of genetic improvement in their herds. However, even more rapid progress will be required in the future just to meet the growing Provincial needs.

EMBRYO TRANSFER can assist livestock producers in their efforts

to increase production. A genetically superior cow normally limited to an average of four to five offspring in her productive lifetime can now produce over a dozen calves in one year. Just as artificial insemination centres are used to produce many progeny from superior bulls, Embryo Transfer Units, such as the one recently opened at Macdonald College, can produce several outstanding progeny from superior cows.

Embryo transfer is not a new science. The first transfers were performed in 1890 using rabbits. Sheep, pig, and cattle embryos were not successfully transferred until the 1950s. Rabbit, sheep, and pig embryos were first successfully transferred at Macdonald College between 1965 and 1969. Even though bovine embryos were transferred in 1969 at Macdonald, the first calf was not born until February, 1973.

Following a number of technical improvements made primarily by Dr. Tim Rowson's group in Cambridge, England, bovine embryo transfer became a fairly reliable method for rapidly reproducing valuable cattle in about 1971. Needless to say, the procedure became a topic of active interest, vigorous controversy and, in some cases, outlandish claims. Several cattle breeders in Canada realized the potential that embryo transfer would have in increasing the numbers of "exotic" breeds of cattle that were in great demand and that were being imported from Europe.

Three commercial companies were established in Alberta and one in Ontario to provide embryo transfer services. Since Canada has the only quarantine station in North America, Canadians were in an excellent position to import "exotic" cattle, to propagate them by embryo transfer and to sell the majority of the offspring at a good profit to buyers in the United States.

Concurrently, research interest at Macdonald was shifting from transfers in laboratory animals and pigs to transfers in cattle. Then last summer the entire Macdonald sheep flock was destroyed because of a disease called scrapie. Thus the sheep barn, which was built in 1968, was converted to an embryo transfer unit primarily for cattle. However, pig and rabbit embryos are still used for research purposes. In addition to the surgery theatre pictured on the cover, the Macdonald Unit has a well-equipped embryo laboratory, an animal preparation room, a large post-surgical recovery area, offices, conference room, and tie stalls for over 40 donors. Most of the recipients are kept at the Macdonald College beef centre or on farms near the campus.

The three main objectives of the Macdonald Embryo Unit are: 1) to provide an embryo transfer service in Quebec, 2) to develop a program designed to train personnel for the rapidly emerging embryo transfer industry and

3) to continue research designed to improve the efficiency of embryo transfer. The Macdonald Unit is fortunate to have the support of the experimental research and teaching staff in the Animal Science Department. Arrival of Dr. Bruce Downey, D.V.M., on campus last fall completed the embryo transfer team. Now the team has had a few months of practice and are beginning to work on "embryo donors" owned by breeders. To date, the vast majority of donor cattle have been from the "exotic" beef breeds.

There is great hope that the new "exotic" breeds will play a major role in increasing beef production. Most of the exotic cattle have been selected for high growth rates and for large body size. However, little is known about their real genetic potential to perform under Canadian environmental conditions. Some of the breeds may not be able to adapt to our winter climate and others may have reproductive problems such as calving difficulties. With the exception of the Charolais, Simmental, and perhaps Limousin, there aren't sufficient numbers of the purebred exotics in Canada for definitive breed comparisons.

These exotics will be used primarily for crossbreeding in commercial beef production. Maine Anjou, Chianina, Limousin, and Charolais crossbreds have been popular in Quebec. Unfortunately, most of the crossbred heifers have been sold outside the Province. In western Canada the Simmental X Hereford and other crossbreds are growing in popularity as range cattle. Hybrid vigour, high calving rates, and good milk production in the beef cow are important factors influencing production.

Eastern Canada will have to rely heavily on the more efficient use of dairy cattle as a source of beef. If more offspring were produced from the top milk-producing cows in a herd by embryo transfer, then a greater portion of the lesser producing cows could be inseminated with semen from beef sires. Thus, with an opportunity to use embryo transfer also comes the responsibility to select the truly outstanding cows as embryo donors.

A farmer's future herd will depend greatly on his selection of donor females. Dairy Herd Analysis Service (DHAS) is a logical source of information needed for the

selection of superior cows. In theory, it is now possible to use DHAS's computer to select, for example, the 20 most outstanding cows on the DHAS program in Quebec. Using these top 20 cows as donors could result in the production of over a hundred heifers of superior breeding in one year. Unfortunately, embryo transfer procedures are relatively complex and expensive. The donors would have to be moved to Macdonald College for at least six weeks. Thus, the farmer loses a source of milk production. In addition, male dairy calves aren't worth very much unless the breeder has a contract with an artificial insemination centre to supply a bull. As a result, very few lactating dairy cows have been used as embryo donors and the few non-lactating aged cows that have been used have not made good donors because of reproductive problems.

Embryo Transfer Can Be Used In Breed Improvement By:

- 1) Expanding a "limited gene pool" i.e., increasing the number of cattle in a particular exotic breed;
- 2) Increasing the numbers of a superior blood line by increasing the number of offspring from a "superior" female. This requires progeny or performance testing;
- 3) Facilitating the transport of breeding stock via the shipment of embryos;
- 4) Decreasing the generation time by recovering embryos from young females;
- 5) Providing superior bulls for commercial production, especially beef.

Table 1. Unofficial Estimates of Exotics in Canada in Spring of 1975

	Pure	$\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{2}$
Blonde d'Aquitaine	42	—	4	2,500
Charolais	3,455	15,341	11,064	62,697
Chianina	130	—	1,500	8,500
Gelbvieh	42	—	1	7
Limousin	900	12	2,500	15,000
Maine-Anjou	170	—	1,875	10,625
Murray Grey	100	—	2,925	16,575
Simmental	2,600	—	6,900	39,100

Exotic cattle have a great advantage of being in a position of relatively short supply and high demand. Thus, prices are good without a lot of evidence of superior performance. Emphasis is still on increasing the limited numbers. However, in the long run embryo donors will be selected on the basis of superior performance.

Care of Donors and Embryo Recovery

All donors are kept under carefully controlled environmental and nutritional conditions that are designed to maximize responsiveness to the hormone treatment. Donors are weighed, rectally palpated and examined on arrival and at various times during their stay to ensure that their ovaries are active and that their reproductive tract has normal tone. After observing a minimum of two normal heat periods approximately 20 days apart, the donor is induced to superovulate (release 3 to 30 eggs). The superovulation treatment usually involves the injection of a gonadotrophin hormone on the 10th to the 14th day following her previous heat. The gonadotrophin hormone stimulates the development of several follicles which contain the eggs. Two days after the gonadotrophin injection, the donors are given a second injection which induces regression of the corpus luteum and permits the onset of heat followed by ovulation. When the donor comes into heat, she is bred artificially with six vials of semen. Two vials are inseminated at onset of estrus and two more vials are inseminated at 12 and 24 hours after the beginning of heat. Some superovulated donors have been observed to ovulate over a wide range of time and this

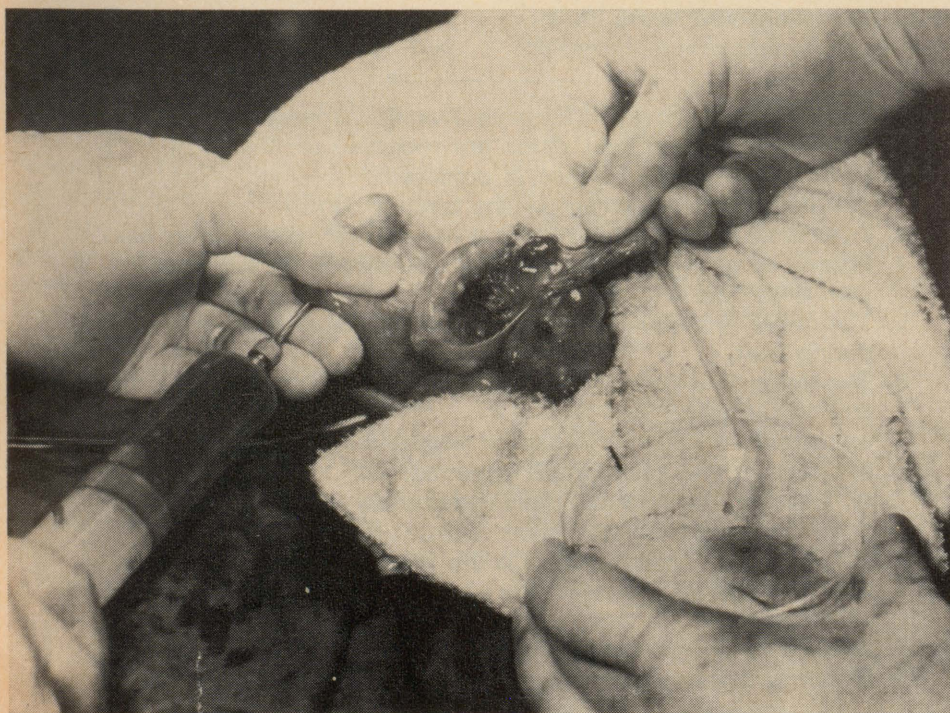
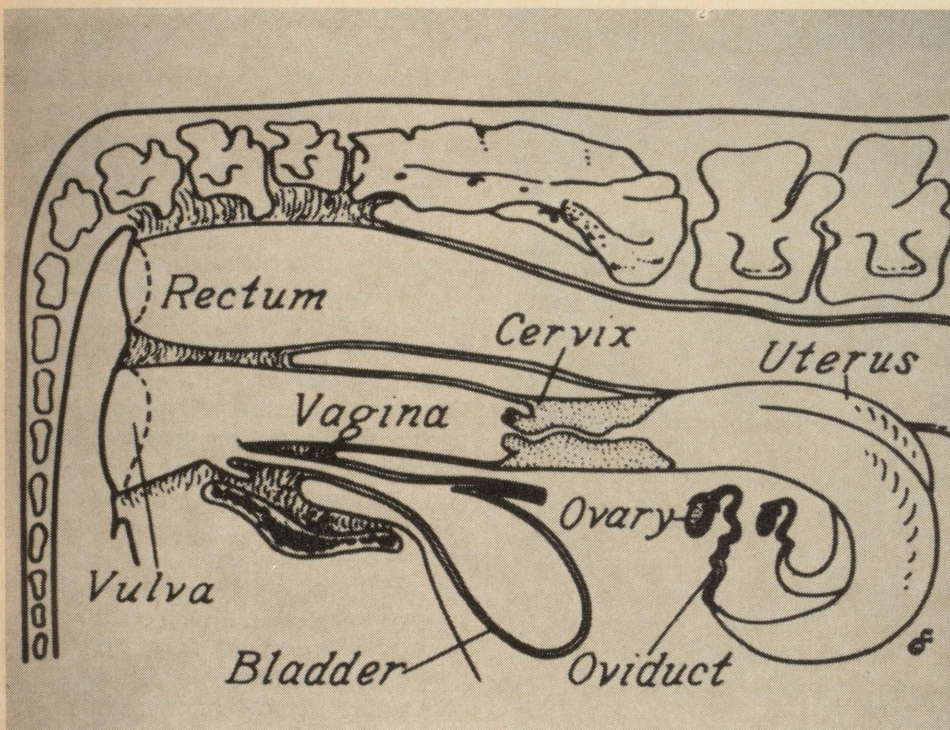


Photos, including cover,
by Ralph Emery.

insemination schedule is used to maximize fertility. Feed and water are withheld from the donors for a minimum of 24 hours before surgery. This reduces

regurgitation of rumen contents during the surgical anesthesia. Surgery is performed on the 5th or 6th day after the beginning of heat. The animals are led into

Top: Reproductive tract of a cow.
 Below: Flushing uterine horn and oviduct
 with culture medium to recover embryos.



the loading rack and are given an induction treatment which permits the insertion of the "air" tube down the trachea. After intubation, the animals are maintained under gas inhalation anesthesia. Raising the support belts of the loading rack prevents the animals from falling during the induction procedure. Further elevation of the belts is used to load the female onto the surgery table in a "belly up" position. The ventral surface or belly just anterior to the udder is clipped to remove excess hair, scrubbed with surgical soap, and shaved. Before going to surgery the area is covered with a good disinfectant.

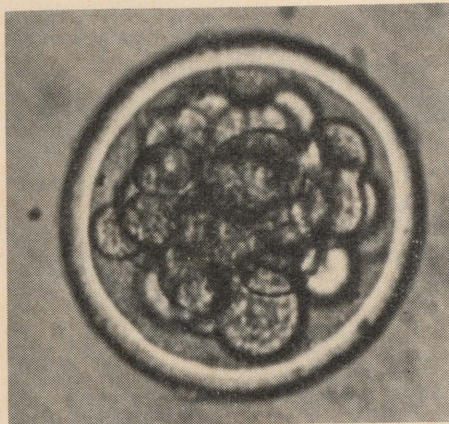
Surgery is performed under aseptic conditions. An incision approximately eight inches long is made along the midline beginning at the anterior edge of the udder. The uterus is brought to the surface and the ovaries are carefully observed for follicles and ovulations. A small glass tube is placed in the natural opening of the oviduct near the ovary. The oviduct is the tube that transports the eggs from the follicles at ovulation to the uterus after fertilization. The embryos are recovered by flushing tissue culture medium through the oviduct and upper portion of the uterine horn from the uterine end out the glass tube in the ovarian end of the oviduct. The fluid that is flushed through the oviduct is then carefully examined with a stereomicroscope in search for the embryos. Good recoveries provide 6 to 12 healthy embryos per operation. Immediately after recovery, the embryos are photographed to provide a permanent record of the stage and condition of each embryo that is recovered and transferred.

Most of the embryos are in the 8 to 64 celled stage of development and are transferred as soon as possible. However, the time from recovery to transfer of the last embryo depends to a great extent on the number of embryos recovered. If eight or more embryos are recovered, two surgical teams are used so that the embryos are not in an external environment for more than a few hours.

Every effort is made to prevent damage to the reproductive organs of the donor and recipients at surgery. The embryo recovery and transfer procedures do not involve surgery of the reproductive organs and handling is done as gently as possible to prevent post-operative adhesions. The operation does not seem to interfere with the normal estrous cycle, in that nearly all females cycle regularly after the operation. In addition, a few donors have been operated on four times and conceived to an artificial breeding following surgery.

Care, Synchronization, and Transfer of Embryos into Recipients

Recipient females are a most important aspect of any embryo transfer program. Healthy young dairy heifers make excellent recipients. They must be free of disease or any morphological abnormalities and they must have normal heat cycles. For maximum pregnancy rates following transfers, the recipients must be in good condition and growing normally. The Macdonald Embryo Unit prefers to have the owner of the donor also provide the recipients. In this way the owner plays a more active role in the program, and he is much less likely to be dissatisfied with the pregnant



recipients that result from the operation.

Since the Macdonald Embryo Unit is limited to the number of recipients that can be housed at any one time, hormone treatments are used to synchronize heat in those recipients that are out-of-phase with the donor. To date, no difference in pregnancy rate has been observed between recipients cycling normally and those that have been synchronized using

recently developed hormone treatments. A minimum of 15 recipients are synchronized for each donor operation.

The vast majority of recipients are operated on via the "belly" while under complete anesthesia as described for the donors. However, a few flank operations have been tried. The flank approach does not require complete anesthesia and is faster to perform but it does not consistently provide good exposure for transfer, and the heifer can move at a critical time during the transfer. With either the flank or belly approach the recipient's uterus is brought to the surface, a very small hole is punctured in the wall of the uterus and a glass pipette containing the embryo is passed through the wall into the lumen. The culture medium containing the embryo is discharged into the lumen, the pipette is withdrawn, and the incision is closed. The

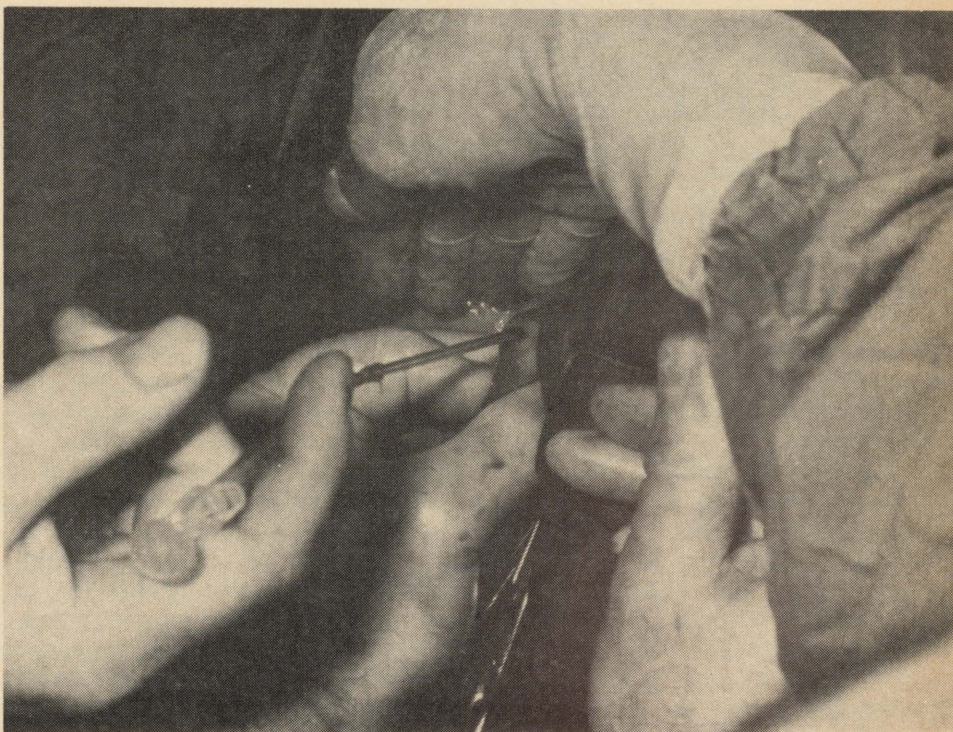
Schedule For A Successful Embryo Transfer Operation

1. Calving dates and heat dates are recorded on the farm and the prospective donor is palpated.
2. The donor is transported to the Embryo Unit.
3. The donor and selected recipient heifers are observed for heat.
4. Fifteen recipients are treated with hormones to synchronize their heat date with the donor.
5. The donor is stimulated to superovulate and is inseminated during heat.
6. The donor and recipients are starved 24-36 hours before surgery.
7. Day of Surgery
 - a. Operate on donor to recover embryos early in the morning;
 - b. Examine and photograph embryos;
 - c. Transfer each normal developing embryo into the uterus of a synchronized recipient.
8. Donor may be inseminated on the first heat (about 14 days) after the operation or she may be recycled through the procedure at a later date.
9. Recipients are checked for pregnancy at 60 days.
10. Donor and pregnant recipients are delivered to owner.

recipient is only a carrier or foster mother in that none of her genes or other traits will in any way affect the calf that results from the transfer.

On an average breeders can expect to get three or four pregnant recipients per donor operation. Unfortunately, the Macdonald Unit has not been in operation long enough to give a realistic estimate of the pregnant recipients that will result per donor operation. Most commercial companies indicate they produce an average of three to four pregnant recipients and one company has a "litter" of 22 recipients pregnant from a single donor operation.

The number of unsuccessful donors varies from 10 to 30 per cent of all females that enter an embryo transfer program. A few females do not get to surgery because of irregular heat periods, poor ovarian development, failure to show good heat after the superovulation, and failure to have three or more ovulations after insemination. Most cows are unsuccessful because fertilized eggs (embryos) are not recovered. In some cases the poor recovery or lack of fertility may be due to excessive hormone stimulation, poor quality semen, infection or blockage in the reproductive tract, or unknown factors. In addition the embryos that are recovered and transferred into recipients may fail to implant due to poor synchrony between the donor and recipients, death of the embryo while outside the animal, a negative fetal-uterine interaction, or unknown factors.



Cost of an Embryo Recovery Operation

The cost of an embryo recovery and transfer depends on the company, the plan selected by the breeder, and the success rate. The Macdonald Unit is currently offering three plans: the Cash-Donor Plan, the Recipient-Donor Plan, and the Recipient Share Plan.

In the Cash-Donor Plan, the breeder provides the donor, semen and he pays: a donor examination fee of \$100, a donor treatment and board fee of \$400, a recovery operation fee of \$1,500 and \$2,000 for each resulting pregnant recipient.

In this plan, the Unit guarantees to provide up to 15 synchronized recipients per donor operation. If more than 15 embryos are recovered, they are transferred only if extra recipients are available. If extra recipients are not available, the embryos are placed in a labelled container and frozen (-196°C) for long storage. The breeder can lose \$500 if his animal is treated but does not go to surgery. If his animal is operated on but no embryos are recovered, he loses \$2,000. If one, two, three, four and so on recipients are pregnant following the transfer, the breeder pays \$4,000, \$6,000, \$8,000, \$10,000 and so on, respectively.

In the Recipient-Donor Plan, the breeder provides the donor, semen, and all or part of the recipient heifers. The cost of this plan depends on the number and quality of recipients provided by the breeder. The breeder pays the donor fees as in the Cash-Donor Plan, but his charge per pregnant recipient is reduced to \$1,500 when he has provided the recipient.

In the Recipient Share Plan, the breeder only provides the donor. The Unit arranges to have a third party pay all the costs of the embryo transfer services for a share of the pregnant recipients. The share depends on the breed of the donor and her blood lines. Usually the owner gets 50 per cent of all pregnant recipients plus his donor.

Notice: Acceptance of all donors or recipients is subject to examination and approval by the Unit's veterinarian(s) with regard to age, health, and reproductive condition.

The Macdonald Embryo Unit is owned and managed as a service department of McGill University. As such the quality of the service provided by the Unit does not depend on the value of the donor. The best available care is provided to all donors. The cost of training students and of doing research is not passed on to the cattle breeders. The research and training are funded by government grants.

Research and the Future

Staff of the Macdonald Embryo Unit are involved in research that is designed to improve the efficiency of embryo transfer. Graduate students, R. Rajamahendran and Doug Beebe are assisting Professors Bruce Downey and

Robert Baker in the study of several factors that influence a donor's response to a superovulation treatment. They are also testing a new method for synchronizing heat in the recipient heifer.

A relatively large project is underway in an attempt to partially separate X and Y bearing sperm to give rise to more female calves, especially from donors of the dairy breeds. Embryo transfer would be of much more benefit to the cattle industry if 75 per cent of the offspring were heifers.

Nonsurgical embryo recovery and transfer would also benefit the cattle industry. Nonsurgical procedures have been studied for several years but very little progress has been made in improving the low recovery and pregnancy rates. Seldom are more than 40 per cent of the eggs recovered using nonsurgical procedures and even a smaller percentage of the nonsurgical transfers are successful. These low percentages are not suitable for commercial use but are sufficient to encourage further research.

Finally, research is underway to develop effective methods for

freezing and thawing embryos. Recent birth of both lambs and calves from embryos that were frozen and thawed in Cambridge is most inspiring. Lynn Forgrave working at the Macdonald Embryo Unit has several litters of mice that have resulted from frozen-thawed embryos. Studies are in progress using bovine embryos. When embryos can be frozen commercially, as semen is, they will be harvested from top quality Quebec cattle and then stored, transferred or sold internationally. In this way, Quebec will be able to continue to contribute to the world's animal protein supply without the loss of their top breeding stock.

Further information about the Embryo Unit's services and facilities, which are located on the Macdonald Campus of McGill University near Ste. Anne de Bellevue, can be obtained by writing, visiting, or telephoning (514/457-9880). The address to write to is:

Macdonald Embryo Unit
P.O. Box 277
Macdonald College, P. Que.
H0A 1C0
Canada

Areas of Research at Macdonald College That Will Increase The Usefulness Of Embryo Transfer

- 1) Partial separation of x and y bearing sperm to give rise to more female calves (hopefully 75 per cent females).
 - 2) Freezing (-196°C) embryos for long term storage or long distance transfer: export.
 - 3) More reliable treatments for inducing superovulation.
 - 4) More efficient methods for synchronizing recipients.
 - 5) Effective methods for transferring embryos nonsurgically or "on the farm".
-

Field Pea Mixtures for Protein Production

by D. A. Shannon and N. C. Lawson,
Department of Agronomy.

The basic concept of self-sufficiency on livestock farms is receiving considerable attention in these days of skyrocketing prices for purchased feeding stuffs.

Traditionally, field peas, either alone or in mixtures, were popular on some farms; however, in recent years the use of the field pea has been declining. The field pea and the faba bean have been suggested as possible solutions to the farm protein crisis. Examination of seed catalogues indicated that pea mixtures were being sold in eastern Canada, and a number of enquiries from farmers have been received. Consequently, we decided to carry out some experiments in 1974 to attempt to answer the two most common questions about pea mixtures. In this article yields are given in kilograms per hectare. If you prefer your information in pounds per acre, this can be done by reducing the values by 12 per cent.

Which mixture should I grow?

Should we sow peas in a pure stand or in mixture with either oats or wheat or barley? Our conclusion was that barley was probably the best companion crop. In our experiment we also looked at the relative merit of having the grain and the peas seeded in the same row, compared with alternate rows of peas and grain side by side. The results of this first experiment are shown in Table 1.

The pea-barley mixture grown in alternate rows gave the highest total yield. This was

significantly higher than the pea-barley mixture when the two species were seeded in the same row. The four other treatments shown in this table were significantly lower in total yield compared with the first two treatments.

When the mixtures were separated into the two components, peas and grain, we found that the proportion of peas was higher in mixed rows compared with alternate rows. This was presumably due to the support of the climbing peas by the stems of the grain plants, thus giving the peas access to the full plot area for photosynthesis to take place. However, this additional aggressiveness reduced the total yield in comparison with the alternate row system.

The individual components, namely, peas and grain, were analysed for crude protein content and the total yield of crude protein was calculated. This clearly indicated that the peas and barley grown in alternate rows were superior to the peas and barley in mixed rows, while the four other combinations were inferior. Once more peas with oats was the poorest.

The crude protein percentage of the various combinations is of interest. Firstly, the mixed in the row combinations were higher, due of course to the greater proportion of peas in the mixture. Secondly, the mixture with wheat had the highest protein percentage, with the barley and oat combinations the same.

Samples of the peas and grain were analysed for fibre content. This indicated that the pea-wheat combinations are better than the pea-barley combinations, while the pea-oats combinations were poorest.

The conclusion that we can draw from the above results is that barley is the recommended companion species. If there is a need to increase the absolute protein percentage so that feed blends with other grains can be made, then the combination with wheat might be better. Also, the lower fibre content in the wheat can be an advantage in concentrated rations.

These results came from one experiment carried out in 1974. Agronomists always hesitate to make broad sweeping generalizations until they have a number of

Table 1. A comparison of barley, wheat, and oats as companion species to peas in mixed and alternate rows

Treatment	Total yield kg/ha	Pea yield		Grain yield kg/ha	Crude protein yield		Per cent fibre
		kg/ha	%		kg/ha	%	
Peas-barley alternate rows	2702	1380	51	1322	579	21	9
Peas-barley mixed rows	2176	1569	72	608	516	24	9
Peas-wheat alternate rows	1700	1147	67	555	427	25	7
Peas-wheat mixed rows	1459	1190	82	269	383	26	7
Peas-oats alternate rows	1373	812	59	561	284	21	11
Peas-oats mixed rows	1300	992	76	310	309	24	10

years of experimentation under a whole range of different conditions. The 1974 season was cool and wet. The experiment discussed herein was not seeded until June 10. Undoubtedly, this late seeding depressed the yield of the grain components as well as the peas. Total yields were lower than anticipated, while it is difficult to say how this has affected the pea to grain proportions.

The humid weather was a factor in the heavy rust infestation observed on the oats. There were some disease symptoms on the barley, while the wheat was very healthy. Diseases were observed on the peas. The reduction in yield due to the diseases in 1974 is not known.

The recommended varieties used in this trial were Trapper peas, Loyola barley, Glenlea wheat, and Yamaska oats. The oats were mature in 77 days, the barley in 81 days, the peas in 87 days, and the wheat in 98 days.

Although we observed higher total yields when the peas and grain were seeded in alternate rows, we do not at this time see how this might be done with today's seeding equipment. Possibly, cross seeding with the peas seeded at right angles to the barley might be done; however, we have no experimental evidence that this would be advantageous.

What seeding rate should I use?

When we decided to carry out experiments on this question we looked at various recommendations and then decided that we should establish modern recommendations

based on modern varieties and practices.

The next question was: which of the three grain species should we investigate in depth? Inasmuch as we believed that pea-oat mixtures were the most common, we decided to use oats. Now that the experiments are completed and we find that pea-barley and pea-wheat mixtures are superior, we find that we investigated the wrong species. The results are interesting and valuable nonetheless.

In this experiment different proportions of pea seed to oat seed were used: 100 per cent peas (0 oats); 75 per cent peas (25 per cent oats); 67 per cent peas (33 per cent oats); 50 per cent peas (50 per cent oats); 33 per cent peas (67 per cent oats); 25 per cent peas (75 per cent oats); 0 per cent peas (100 per cent oats). The results are shown in Table 2.

In terms of total yield the 25 per cent pea combination gave the highest yield. As the proportion of peas seeded in the mixture increased, the total yield tended to decrease. Peas tended to multiply at a faster rate than the oats; that is 25 per cent peas in the seed mixture gave 43 per cent peas in

the harvested mixture. This was less apparent as the proportion of peas increased in the seed mixture; that is, 75 per cent of pea seed gave only 81 per cent of peas in the final harvest. Increasing the proportion of pea seed diminished the oat yield severely. This was due to earliest lodging being associated directly with greatest pea seed proportion. The yield of crude protein was relatively stable except in the case of 100 per cent oats and 75 per cent peas (25 per cent oats). The pure oat stand gave about one-half of the protein yield of the best treatment, while 75 per cent peas gave two-thirds of the best protein yield. Clearly, protein percentage in the harvested mixture increases with increasing pea content, while crude fibre content decreases.

The results of this second experiment agree neatly with the pea-oat results in the first experiment. The suggestion is that the 50 per cent pea-50 per cent grain mixtures examined in the first experiment may have had an excessive number of pea plants for optimum yields. These data indicate that 25-33 per cent of pea seed may be superior for total yield, total protein, and harvestability. Greater pea seed proportions

Table 2. The effect of varying the proportions of peas to oats in a mixture

Treatment	Total yield kg/ha	Pea yield		Oat yield kg/ha	Crude protein yield		Per cent fibre
		kg/ha	%		kg/ha	%	
0% peas/100% oats	1596	0	0	1596	174	11	16
25% peas/75% oats	1725	741	43	984	312	18	13
33% peas/67% oats	1622	931	57	692	343	21	12
50% peas/50% oats	1363	933	68	429	316	23	11
67% peas/33% oats	1196	971	81	225	311	26	11
75% peas/25% oats	924	747	81	176	235	25	11
100% peas/0% oats	1288	1288	100	0	348	27	10

Left: Trapper field peas and Glenlea wheat growing in separate, alternate rows, 28 days after seeding.

Right: Trapper field peas and Yamaska oats planted mixed within the rows, 28 days after seeding.



can only be recommended when higher percentage protein is needed for a specific purpose.

Conclusion

We calculated precisely in kilograms per hectare the optimum seeding rates derived from these experiments. In terms of the

quantities farmers still like to use we can recommend that the rate should be: **1 bushel (60 pounds) peas and 1 bushel grain per acre.**

Of course a bushel of wheat is 60 pounds, barley 48 pounds, and oats 34 pounds. The peas used in this experiment are small seeded.

If larger peas are used, such as Century, a slightly heavier seed rate is needed.

Finally, we should remind our readers that field peas are a legume and as such they should be treated with the correct inoculum to get maximum nitrogen fixation.

MAFALAPOO

by Jim Feeny,
Quebec Young Farmers' Association

One of the many problems farmers will have to face this summer is finding help for the million-and-one jobs that have to be done from the beginning of May to the end of August. Fences have to be mended, buildings must be built or repaired, animals have to be taken care of, and crops have to be planted, fertilized, cultivated, and harvested. The list is endless. There never seems to be the time to do everything and many farmers are finding it difficult to find qualified, short-term, summer help. It seems that most people just do not want to get involved in the hard work and long hours that farming involves.

On the other hand, many university and CEGEP students will be finishing their year's studies around the beginning of May. These people are earnestly searching for jobs that will enable them to continue their education. Many are willing to work hard. This is especially true here at Macdonald College where young people are being trained to be the agriculturalists of the future. Many of these students need farm experience as a requirement for their course of study; others would like the experience for their own interest. And, of course, a few already have farm backgrounds.

What we have are two groups with a problem — one group providing the solution (or part of it) to the other. The question is: how do the two groups get together? It has not been that easy in the past.

This year there may be an answer. MAFALAPOO (MAcdonald Farm

LABour POOL) is an organization that is trying to help students find work on farms this summer, and at the same time help farmers find help for their operations. The project is the result of the work of a number of people. Rudi Dallenbach found that he had more applications for summer jobs on the Macdonald Farm than he could provide work for. The Quebec Young Farmers' Provincial Federation was anxious to start up a service that would help farmers find summer help. The students needed and wanted the work. It was a matter of getting all these groups together to discuss how the aims of each could be realized. Consequently, a meeting was held in mid-February, and a committee with representatives from each group was formed. This committee is developing methods of making MAFALAPOO a reality.

MAFALAPOO has already started with a month-long training program being given on the Macdonald Farm. Some of the applicants have had little or no real experience on farms, and it was essential that they have some before being placed. Therefore, they are now being instructed in care, feeding, and milking of cows (how to **do** it!), use of farm machinery, and so on. This training program is compulsory for those who have had no previous experience. When the students finish their school year, they will start work on the Macdonald Farm where they will be paid a basic salary. Extra work, off the Macdonald Farm, has to be found so that every worker can be paid enough to enable him or her to go back to school in the fall. This is where the Labour Pool plays a role.

We are getting in touch with farmers, asking them if they require help this summer, how much

they are willing to pay, what type of work is involved, etc. From the information we receive, we will place qualified workers on the farms where they are needed. How long the student spends on the farm is up to the needs of the farmer. If the farmer needs help for four or five days, that's the time the student will be on the farm. The same applies for two weeks, two months, or whatever. Once the job on the farm is finished, the student merely comes back to the Macdonald Farm, where he works until he is needed somewhere else.

The money that each worker makes will be paid into a common fund, which will be divided among all the participants at the end of the summer. The applicants felt that this cooperative structure would be the fairest to all.

The Labour Pool is not limited only to farms. If you require help around the home this summer — painting, building, house cleaning, gardening, or whatever, we have workers for these jobs as well. Just get in touch with us, giving us the terms of the job (how long the help is needed, type of work involved, how much pay, etc.) and we will do our best to fill the job.

This is the basic structure that has been worked out up to this time. There are still a lot of gaps to be filled, and that is where we need your help. Do you have any comments, complaints, or suggestions to make? Would you like to participate in the project by hiring a MAFALAPOO student this year? Or, would you like more information? We need feedback from the public so that our plans fill a real need in the community. Only then will the project be a
(Continued on Page 20)

The Family

Farm

Published in the interests
of the farmers of the province
by the Quebec Department of
Agriculture.

(Notes for a speech by
Mr. Gaétan Lussier, Deputy
Minister, Quebec Department of
Agriculture, to the 55th Annual
Meeting of the Meat Packers'
Council of Canada on February 12,
1975, at the Château Frontenac in
Quebec City.)

We are very glad that you have
chosen to hold your annual meeting
at Quebec during the famous
Winter Carnival.

The theme of your meeting could
not have been more wisely chosen,
more timely, or more appropriate:
"New times, new challenges."

For indeed, in the field of
agriculture and food, we are living
in a new era which the past has
little prepared us to grasp and cope
with. These new times present new
challenges to all those concerned
with the agriculture-food system,
demanding of them a new outlook,
new attitudes, and new dynamism.

It was, in fact, your managing
director himself who, in commenting
on the theme of your meeting,
said, "As the consumer's purchasing
power is subjected to increasing
pressures, the time has come to
explore every avenue likely to
render production and distribution
more efficient."

The Economic Situation

The economic expansion to which
we had grown so accustomed as to
consider it the natural order of
things, came to a sudden end in
1974 and the short-term prospects
at least are not reassuring. We
have passed from an overheated
economy to a state of stagnation
which is undermining economic
activity and increasing
unemployment and yet is

accompanied by an inflation which
nobody would have dreamed of
only two years ago. This situation,
which I know you are all well
aware of, is not without serious
consequences for your industry in
its relations with other sectors of
the food industry. As a speaker
stated recently at Ottawa during
the Agricultural Outlook
Conference: If Canadians are going
to continue to consume some
1,450 pounds of food a year per
capita, it is not certain that the
contents of the food basket will be
the same. Meat comes under the
heading of "dear" food and is
therefore more susceptible than
other foods to decreased consump-
tion in a worsening economic
situation. And here is where the
full implication of Mr. Leckie's
statement is brought home to us.
For the food industry, the most
imperative need today is innovation.
I shall return to this subject later on.

Agriculture: Scarcity Rediscovered

In the past two years the world has
re-awakened to a forgotten
reality. During those two years,
there have been spectacular
reverses in the food sector; from
a condition of surpluses to which
we were all fairly accustomed
(and which even led our countries
to acts of agricultural
Malthusianism) we have now
reached a state of scarcity.

Cereal stocks are at their lowest
level in 20 years and, according
to the Rome Conference, they only
amount to a few weeks'
consumption. At the end of 1973,
we were counting on record crops,
but drought and floods in turn
confounded the forecasts. This
situation had three results: (1) the
appearance or continuance of

famine. The Rome Conference
estimated that it would be
necessary to distribute many
millions of tons of cereals to poor
countries to prevent their
populations from being decimated.
Wasn't it predicted that, without
massive and immediate aid, many
millions of human beings would die
of hunger? (2) Maintenance of
world prices for staple foods at a
very high level, partly owing to
high production costs.
(3) Increased trends towards
quotas in international import
and export trading.

Surpluses and Price Fluctuations

From time immemorial, world food
production has been characterized
by conditions of surplus followed
by conditions of scarcity which
have led to price fluctuation whose
severity has by turns induced
farmers to stop farming or, at the
other extreme, to overproduce.
Thus, there is now much more talk
of food scarcity and some of the
more pessimistic forecasters are
even raising the spectre of famine.

However, you who are members of
the Meat Packers' Council know
very well that such statements must
be qualified and circumscribed; one
has to be objective. Indeed, in a
world generally marked by scarcity,
we are nevertheless now
experiencing surplus beef
production, although no one is
claiming that we shall have
surpluses of cereals again like
those of a few years ago.

Confrontation Between the Farm and the City

The aforesaid instability of prices
received by farmers and the wide

swings in agricultural production are leading to a "confrontation" between our agricultural and urban populations. There is, of course, nothing new about this but today it is being felt in a more acute form. It is incumbent on all concerned with the agriculture-food sector to seek a better sharing of benefits and disadvantages between farmers and city dwellers. You know as well as I do that farmers still suffer from many handicaps and disadvantages, including long hours, uncertain yields, and vagaries of climate which very few city workers would accept. Today's farmer seeks, and rightly so, a marked improvement in his way of life; he wants a life which is more human and less at the mercy of the environment and of other men. He wants better prices for his produce.

As I see it, agriculture-food authorities thus face a double challenge, namely to increase food production in circumstances which are becoming increasingly difficult because of the growing reluctance of today's farmers to produce under conditions they consider unjust (living conditions price fluctuations, uncertainty, etc.).

Farmers Penalized

The farmer's situation is in marked contrast with that of other classes of workers. On the average, his net income fell by nine per cent in 1974, following, admittedly, three years of unusual progress (an average increase of eight per cent). As you know, beef producers have been the hardest hit and they have been profoundly affected by the tensions resulting from overproduction on a world scale.

The decline in the returns of beef producers in Quebec, as elsewhere, can be explained by a high level of production marking the peak of the cyclical trend started three years ago. Our plight is aggravated, however, by the fact that beef cattle production started only recently in Quebec and is still little organized so that our producers have felt more severely than others the effects of the unfavourable trend in the prices they receive.

Improvement and Stabilization of the Farmer's Income

The cyclic trend in farm income is a well-known phenomenon. During the past 10 years, we have had three years of declining net income and seven years of increase.

The distressing effect of raising feed costs combined with falling prices for beef in 1974 have at any rate made it possible to awaken public opinion to the scarcely endurable plight of the farmers who, in the case of some productions for which markets are not well organized, often have to face simultaneously an increase in the prices they have to pay and a decline in the prices they receive.

The fluctuations in farm income, whose less favourable trend in 1974 constitutes another example, clearly demonstrate the need to introduce an income stabilization mechanism. The Quebec Department of Agriculture has long been aware of the need for farm incomes to show a more stable and rapid increase and, as soon as possible, reach parity with those of other classes of workers.

Convinced that fluctuating farm returns impede and vitiate the normal development of agriculture, the Quebec Department of Agriculture has just revealed the draft of a bill designed to stabilize farm income. The Department has thus launched out in a new direction which offers sound prospects of stable and more enduring progress and goes beyond the usual subsidization measures. Let me recall that the basic aim of the preliminary draft of the Integrated Agriculture-Food Development Plan, which Mr. Normand Toupin revealed to the press last October, is to raise and stabilize farm income. In attempting to do this, the Agricultural Department rejects as a principal means the policy of fixing prices for all farm products, because such a system is scarcely thinkable in our political and economic context and might prove disastrous — as European experience has shown. The Quebec Department of Agriculture is basing its action instead on setting up a mechanism — a compensation fund — which directly involves the farmer in the pursuit of income stabilization.

Farm Productivity

Our efforts must not, however, be confined to income stabilization; wherever possible, farm productivity must be increased as well. Some people cite figures to show that the farming sector's productivity has been rising at an extraordinary rate — compared with that of the industrial sector — for some decades past, as witness sporadic surpluses notwithstanding the decline in the number of farmers. This is undeniable, but you and I know that there is room for improvement. Especially this year,

farmers must show imagination and initiative and improve their management in order to reduce production costs as much as possible. By way of example, I will confine myself to dairy farming and grain growing. As regards the first, Quebec milk producers average the lowest yield per cow in Canada and the Department's target of raising it by about 200 pounds each year was only half attained in 1974. With regard to crops, yields could be distinctly higher — as shown by performance in other provinces — provided that the land is adequately drained and fertilized.

Improved farm structure resulting from the creation of larger and more productive farming units must also be aimed at because it is an essential condition for increasing farm income and keeping food prices as low as possible.

Protection of Farmlands

I am sure you will agree that it would be pointless to try and raise farm production if the land best suited to agriculture is the object of speculation, is taken out of cultivation and eventually used for non-agricultural purposes.

The total area of arable land in Quebec is only about six million acres and the best farmland (about two million acres) is found around the big urban conglomerations, being mainly concentrated in the Montreal Plain.

It is quite senseless to improve farmlands unless acreage suitable for agriculture on which large sums have been spent for specifically farming purposes are protected against speculative and disorderly

industrial and highway development and urban expansion. The public interest thus demands that the Government take energetic steps to safeguard the considerable investment in farmlands to which, moreover, it has contributed. We have repeatedly brought up this grave problem. Perhaps you know that a bill is being drafted in this connection. The preparation of a land zoning plan and the passing of an act to support its implementation seem to us a necessity.

Rationalization of Marketing Mechanisms

We have yet to be convinced that the marketing of farm products should be exempt from the savage laws of competition. I do not, of course, have to explain to you why agricultural activities are not like other activities. Marketing organizations try to ensure better managed production more in keeping with market needs and to avoid price fluctuations — briefly, they try to organize the market. We believe there should be more of these organizations whenever they prove necessary. However, recent experiences with marketing boards have not lived up to expectations and would seem to indicate that these agencies have not fulfilled their mandates.

The creation of marketing agencies must not lead to the virtual separation of the Canadian market into watertight compartments; on the contrary, all producers in every province will have to respect a plan's intention or else suffer repercussions followed by painful readjustments. It is thus fundamental that the conditions set

by boards be rigorously applied. The insubordination of certain producers, as recent events have demonstrated, has clearly shown the need for the agreement to be more strictly respected by all concerned. Perhaps we must think about setting up an Advisory Committee, within the National Marketing Board, composed of representatives of all the agencies involved and exercising more rigorous control. Such a committee should be able to ensure that production is kept track of and bring to light distortions and imbalances at the provincial and national levels.

The rationalization of marketing mechanisms is a task of the highest priority. The boards must be a "frame of reference" for the activities of all the agencies involved in the sector concerned. Thus conceived, instead of weakening the producers, the boards will strengthen them. In passing, it should be said that we know that producers are aware of the existing difficulties and are seeking ways to improve the regulating efforts of marketing agencies.

An Integrated Agriculture-Food Plan

At the Quebec Department of Agriculture, we are convinced that Government action should be based on a comprehensive approach to agricultural development because the food processing and distribution industry is exerting a growing influence on farm production.

The food industry is agriculture's number one customer, absorbing 70 per cent of farm production and

then adding to its value and adapting it to the consumers' demands.

Throughout the world, farming and food industries are becoming increasingly integrated to form a constantly developing agriculture-food sector. The dynamism of a food industry is passed on to the farm production sector which is thereby stimulated and oriented towards satisfying the needs of the consumer. The promotion of beef raising goes hand in hand with the construction of well-organized abattoirs of a paying size.

The integrated agriculture-food development plan which Mr. Normand Toupin unveiled to the press last October expresses in concrete form the Quebec Government's intention to intervene at all levels of the agriculture-food system in order to ensure optimum and sound development of the farming sector and of the food sector.

That is why the government, inspired by the success of the dairy industry consolidation program, whose effects have been highly beneficial, will now proceed through the amalgamation, regrouping, consolidation, and modernization of a number of abattoirs and canneries to encourage them to expand and diversify their operations. The Department will also seek to study and encourage the building of new and innovative plants making the more highly finished convenience food items demanded by the modern consumer.

Possibilities for the growth of Quebec's agriculture are considerable. The raising and

stabilization of farm income combined with the improvement and protection of our agricultural resources is an essential condition for the increased production that everybody now wishes for. We want to avoid having dynamic farmers refuse to expand and modernize and young people turning their backs on farming. It is in the more favourable circumstances I have outlined that the challenge to feed ourselves, under the best possible conditions, will be taken up.

You who are processors are well aware that increased production cannot be achieved on a basis of low farm income. One cannot ask farmers to raise or even maintain production unless they are assured of stable and paying prices.

I am sure I do not have to convince you that any conflict between the interests of different sectors of the agriculture-food industry is more apparent than real. In the long run, no sector profits from the swing of the surplus-shortages pendulum. Alternating high and low prices hurt first some sectors then others. Price fluctuations give rise to serious distortions for all members of the system and profit nobody. Relations between the different sectors ought not to be antagonistic; instead, fair and equitable rewards must be the aim — for all concerned.

The theme of your meeting "New times, new challenges" conveys very well that innovation is a must for the food industry and especially, in the present circumstances, for the meat industry. In the world of food production, imagination has shown its mettle, as the wider range of elaborated products shows. But

further progress is still possible and necessary. As your managing director said, every possibility of being more efficient must be explored. You must be ready to accept a high rate of innovation in production and management and to attain a knowledge and experience of materials and methods such that your industry can vouch for the quality and safety of meat products in a world where, to an increasing extent, foodstuffs will be composite substances made by combining several more or less elaborated products not exclusively of agricultural origin.

There you have an enormous challenge which I know the Canadian meat industry is definitely able to meet.

Beef sire evaluation program announced: A national program to monitor and evaluate beef sires was announced. The National Beef Sire Evaluation Program will operate as an extension of the current Record of Performance (ROP) home test program that is administered by the federal and provincial governments.

The magic of urea: Urea is a safe feed if used properly, says Agriculture Canada nutritionist Louis Laflamme. He says the department gets many questions about urea and that some animals have become ill or died from being fed too much of it. He says farmers should read the feeding instructions carefully, and, in most cases, not use urea for more than one-third of the protein requirement in the diet.

(From This Month with Agriculture Canada, January, 1975).

Gaspé Glimpses

"This is a very beautiful part of the province and we are a busy place with tourists. Some people fish, most do some farming and raise their own meat for sale locally. Many have kitchen gardens.

"We skate, ski, and snowshoe in the winter. This past winter has been a rough one with more snow than the last three put together! Some branches had to postpone or even cancel January meetings because of the weather. "Most of us knit, sew, crochet, or quilt, and we have had courses in sewing and weaving which have been of great help to us. All the branches enter in the Fall Fair." — Mrs. Kennedy, Douglastown.

Barachois held a supper to raise funds for their church. They assisted a burned out family and sent a food basket at Christmas.

The older members of **York** branch showed the younger members how to crochet. They won a trophy for most wins at the local fair. They are interested in the education of their children and gave a donation and three trophies to a special class. Their 35th anniversary was celebrated last year and WI pens were given as souvenirs to their visitors. A petition was sent from the branch to have television, radio programs, and newspapers in English.

Letters from pen pals are always interesting to get as **Wakeham** branch has found, and they make interesting reading at meetings. This group donated a set of books to the school special class.

They recently presented two members with their 25-year pins. At one meeting Wakeham had a display of articles from other countries which generated a lot of interest.

Gaspé members have been knitting squares which will be sent to Africa to be made into blankets for the poor.

Murdochville have been using their sewing skills and have made curtains for the local hospital. They sent gifts, glue, old cards, and scrapbooks to the children in a sanatorium. Funds were raised by having card parties and a penny sale and by selling tickets on a Hudson Bay blanket donated by the Bay. Last year they enjoyed an interesting and informative tour of the Gaspé copper mines.

P.E.I. Pen Pals

Quebec and P.E.I. are "twinned" this year. Several counties are already twinned, but anyone who has not been contacted may write to: Mrs. Carrie Herring, Murray Harbour, P.E.I.

How to Become an A.C.W.W. Letter Friend

Write to A.C.W.W. marking your envelope "Letter Friend", giving details such as your age group, environment, children's ages, husband's work (if you are married), and all your interests and hobbies, so that you can be matched with an ideal correspondent. The address is on the back of your Federated News.

No charge is made for the Letter Friend scheme; however, it involves a great deal of administration and

postage costs. Would you like to show your appreciation by giving an extra donation to Pennies for Friendship or by becoming a Contributing Member to A.C.W.W. for one, three, or five years at 1 £ per year.

As a Contributing Member you would be entitled to the bi-monthly magazine "The Country-Woman", and you would be helping A.C.W.W. to continue its work on behalf of over eight million members.

Mrs. Gordon French,
Citizenship Convener.

How We Adapt

Rich or poor, young or old, we all share the same objectives in life — how to live it better. Never has mankind been so preoccupied with this problem. Never has there been such an outpouring of advice on how to relax, eat better, stop worrying, make love, lose weight, build muscles, prevent disease, sharpen the mind.

While most of us are assured of basic food and shelter, the nuances of living seem to become more complex. More and more of us are beset by the noise, haste, loneliness, and fears of modern living. Will we die without warning in a car or an aircraft, or by heart attack? Are good food and pure water vanishing? Are we killing off the other, and essential, kinds of creatures on the earth? Will the whole world end in a bang? Yet, surprisingly, an individual can cope in this harassing world better than at any other time in human history. "It is not life that kills us, but rather our reaction to

it." More and more knowledge and means of self-help are at our disposal.

In the beginning we are dealt a particular body. Some of us get a better deal than others. But no matter what our basic intellect or physique, we tend to abuse or misuse the body that God and genetics bestowed upon us. Most of us take better care of our cars and dishwashers than of ourselves.

Preparing balanced meals is a bother, particularly for a working mother. Many families don't sit down together at meals anymore, which makes planning chaotic. We are seduced by food advertisements into eating junk. Teenagers and single people tend towards snacks, TV dinners and other "convenience" foods, which are generally more expensive and less nutritious.

However, much of our eating is more emotional than rational. Many of us skip breakfast, eat a meagre lunch, which brings on a headache and fatigue by mid-afternoon, and gorge ourselves at dinner, piling on the calories when least needed.

Malnutrition may even have a profound effect on one's intellect and mental health, and may reach back to the very beginning of life. Studies reveal that children, undernourished at birth, have more brain abnormalities and do not perform as well at school. "If we put a seed in poor soil we can't expect the same harvest as from enriched soil." "So it is with pregnancy."

"Adjustment to life." Perhaps this is the key to everything. There are three common sense words which are anxiety, tension, and depression. We should be able to meet all of the crises that befall us in life and instead of being crushed by them come out at the other end stronger.

The pursuit of no stress is one of the great fallacies of our age. Less work and more pay seem to be the ideal of society right now. But in order to enjoy a good meal you must be hungry. To enjoy relaxation you must first be tired. If you have absolutely no activity you don't enjoy life.

If every young student knew by the time he finished his first biology class in grade school that the body responds to self-generated psychological inputs, that blood and heart behaviour, as well as a host of other body processes, can be influenced at will, it would change prevailing ideas about both physical and mental health. It would then be quite clear and understandable that we are individually responsible, to a large extent, for our state of health.

Mrs. Merlin Lewis,
Convener of Welfare and Health.

Correction

An apology to *Pioneer* branch (Argenteuil Co.) for taking 10 candles from their birthday cake. They recently celebrated their 60th. Anniversary not their 50th as was reported in the January issue. And apologies too, to President Mrs. Clifton Matthews — sorry we spelt your husband's name incorrectly.

My opinions about the WI

(Written by Mrs. Junior Harvey, Dunham W.I.)

The WI meetings are a monthly "retreat"
From what I do, from week to week.
I cook and clean, make beds
and sweep floors,
And have to pretend I am never bored.

At our meetings I learn of new
recipes to cook
And IF I have time, I may make
a book . . .
I learn about farming, the prices
and such,
And if they are high, I even will fuss.

The health tips I learn, sometimes
are helpful.
But sometimes the remedies
make me feel terrible.
The Sunshine Convener brings
sunshine to others —
Publicity reports WI news to the
papers.

For me, personally speaking,
it's a change of routine,
And my WI membership means
a great deal to me,
Because being a member, I have
many friends,
And my wish is my daughters
will keep up the trend.

For friends are a "must" in this
world of today . . .
To me, in one word, the WI is
"Okay."

**Mrs. James Robertson,
Publicity Convener**

Mrs. Robertson was born in Nairobi, Kenya, East Africa. Her parents farmed and grew coffee, straw-



berries, and vegetables besides having dairy cows and pigs.

As the school was so far from the farm, her mother taught her and her brothers at home till they were old enough to go to boarding school.

At 15 she went to stay with her mother's people in Scotland where she completed her schooling and trained as a nurse.

Mrs. Robertson returned to East Africa in 1944 to nurse in the Government Hospital in Dar es Salaam, Tanganyika (now called Tanzania). She married James Robertson in 1945 and came to Canada with him and two sons and a daughter in 1952. Another son was born to them in Canada.

Mrs. Robertson has been a member of the Hemmingford WI since 1957. She has held offices in the branch and county and was QWI Convener of Welfare and Health for four years. She is at present Publicity Convener for QWI.

Two sons are married and there are two grandchildren.

A SERMON ON SOAP

Duz you Drift with the Tide? Vel now is the time to Cheer up. The Trend is to Breeze to Church next Sunday.

Too many people Woodbury their heads in A pillow, or work to make their own Sparkle, forgetting that the Lord's Day is for Lestoil.

When the Lord's Day is put first, A Dove will never be sent with an SOS. Maybe we ought to Dial you to remind you Of the Ivory

Palaces yonder!

Worship is your Lifebuoy, so why not Whisk yourself out of bed next Sunday — Dress up — Spic and Span, and Dash Like a Comet to Sunday School and Church. As you sing praises to God and hear His Word, you'll feel like Mr. Clean all week. (Sent in by Mrs Alma Jack of Valcartier.)

Dear Fellow Members:

Since becoming Publicity Convener I have been trying to find out about the different areas our members live in, what they do and what the countryside is like. Some of you have told me about your areas and I will be very happy to hear about the others. We hope to include this with your news when your "month" comes up. This month we have a little on Gaspé.

Valentine's Day is past, but it brought a bit of cheer in the middle of winter and it gave us a lift, which we needed. Many of you remembered shut-ins and the elderly with either cards or cookies on this day.

Several branches have been able to help families who lost everything by fire with money, milk tickets, food, or quilts.

Donations have been made to UNICEF, community halls, arthritic association, cancer fund, local

schools, 4-H groups and Pennies for Friendship and prizes given for handicrafts in junior sections of local fairs.

Abbotsford had a contest to guess the number of pennies in a jar for Pennies for Friendship. They plan on making more than 10 ditty bags this year.

Contests are still an interesting and popular part of a program. Some reported varied from a useful article made from something we throw out, i.e., cans, egg cartons, ribbon, string to word contests, a Canadian questionnaire and knowing your calories and vitamins.

Demonstrations are also popular and members have been learning how to do Macramé, how to ice and decorate a cake, and how to crochet. *Grosse Isle* members are working on handicraft articles for their boutique and collecting recipes for a Magdalen Island cookbook.

In *Fordyce*, the convener for ACWW, Mrs. David, told about her visit to ACWW headquarters in London where she met several ladies including Mrs. Sybil Gibson, editress of "The Country Woman." The English ladies were very interested in hearing about WI work here and Mrs. David enjoyed hearing about their work, especially that of trying to find ways and means of assisting the underprivileged.

Another member, Mrs. Elwin Stowe, had attended a meeting of the Rural Institute at Minishant in Scotland. The branch has contact with a B.C. WI and exchange scrapbooks. They had received a letter from a friend in Australia, describing living conditions, prices, etc., and had seen slides of this country.

At a recent publicity meeting at Gore it was pointed out that "good communication means good publicity and we can't have either without good listening." The members were given paper and pencil and asked to draw, freehand, squares on a paper according to verbal instruction — no questions allowed. The varied results emphasized the fact that in a room full of people each person has a different interpretation of a speaker's remarks.

Five members of this branch are to be honoured for perfect attendance. One member of 50 years remembers when her WI pin cost 65 cents.

A suggestion was made by a new member in one branch that each Convener keep a folder with information about her convenership and with cuttings and articles pertaining to her job. This could be handed over to the new convener. In this way the convener would have material available, and it would greatly help the new one taking over.

West Island branch had two speakers recently: Mrs. Mary Parfitt, who is part-time coordinator with the Homemaker's Program in Lachine. She spoke on the program, how it originated, and its present operation; and Mrs. Kirsti Fernberg,

who had trained as a textile artist in Finland and who showed many of her handwoven designs on items ranging from placemats to superb wall hangings. She demonstrated, with a loom, how designs are woven into the material. Mrs. Fernberg's works have been on display in the National Art Gallery in Ottawa, the Canadian National Exhibition, and the Confederation Art Gallery in Charlottetown, P.E.I.

A *Kinnear's Mills* member gave an excellent presentation on breast cancer and *Abercorn* heard how to make posters using various methods including collage.

Mr. Philip Doddugde spoke to *Black Cape* members on his experiences as a prisoner of war in Hong Kong. A school principal spoke on education from kindergarten through high school.

A film "serving soup to school children" was seen by *Port Daniel* members. They purchased Olympic medals and presented them as a thank-you gift to a lady who had given much time and help to their branch, though not a member.

(Continued from Page 12)

success. So, if the answer to any of the above questions is yes, please drop us a line. The people to write to are: Mr. Rudi Dallenbach, Macdonald College Farm, Macdonald College, H0A 1C0 (Tel: 514/457-5315) or Jim Feeny, Quebec Young Farmers, Box 237, Macdonald College, H0A 1C0 (Tel: 514/457-6580, local 358).

Twelve library membership cards were donated by the WI in *Marcil* to three schools and *Matapedia* saw slides on the Matapedia flood.

A quiz on the WI handbook was held at a meeting in *Grand Cascapedia*, while *Restigouche* report that they have five new members and have completed a quilt. An idea we might find useful: one branch bought and donated small 35-cent wrapped gifts in answer to the Roll Call and these will be used during the year as prizes in future contests.

Bill 22 still concerns us and one branch held a Bingo with proceeds going to help fight Bill 22.

Roll Calls such as "ways to stretch your food dollar;" "a practical idea;" "an item from a newspaper" brought some interesting and helpful ideas.

Two mottoes — Age is mostly a matter of mind; if you don't mind it doesn't matter, and When one stretches the truth, people can usually see through it.

Mrs. J. Robertson
Q.W.I. Publicity

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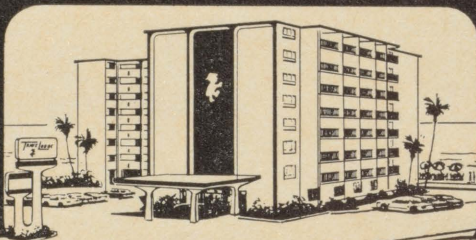
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